

# TECHNICAL NOTE      NUMBER 170

FOREST PRODUCTS LABORATORY - U. S. FOREST SERVICE - MADISON, WISCONSIN

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## COPPER SALTS IMPROVE CASEIN GLUE

It has been found that copper salts added to casein glues increase their resistance to moisture and also make them more durable when exposed to the action of molds and fungi.

In the preparation of copper-casein glue at the Forest Products Laboratory, 2 to 3 parts by weight of copper chloride or copper sulphate are dissolved in about 30 parts of water and are added to every 500 parts of the ordinary casein, lime, and water-glass glue. The copper salt may be added at any one of several times during the mixing operation. If added as a powder before the casein is soaked, it may have a corrosive action upon the metal container. The copper salt, if added as a powder, should be thoroughly mixed with the casein before the addition of the lime. Copper salt may be placed in solution and conveniently stirred into the moistened casein immediately before the lime is added or after all the other ingredients have been combined. If the copper solution is added at the end of the mixing period, pour it into the glue in a thin stream and stir the mixture vigorously. Continue stirring until any lumps, which may have formed by the coagulation of the glue and the copper solution, are broken up and a smooth violet-colored glue is obtained.

Glues containing little lime are especially improved by the addition of copper. A low-lime glue with copper may be as resistant to moisture as a glue with more lime in it, and copper does not shorten the "life" or period of workability of the glue so much as more lime would.